

KNOWLES ELECTRONICS, LLC, )  
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Plaintiff, )  
)  
No. 11 C 6804  
)  
v. )  
Hon. Joan H. Lefkow  
)  
ANALOG DEVICES INC., )  
)  
Defendant. )

Before the court is Analog Devices Inc.’s (“ADI”) motion for partial summary judgment seeking invalidity of United States Patent No. 8,018,049 (“the ’049 patent”) under 35 U.S.C. § 102. Knowles Electronics, LLC (“Knowles”) alleged that ADI infringed claims 1, 2, 5, 6, 11, 12, 15, 16, and 19 of the ’049 patent in this lawsuit.<sup>1</sup> The issue presented in ADI’s motion is whether the ’049 patent is anticipated under 35 U.S.C. § 102 by United States Patent No. 6,324,907 (“Halteren”), which would render the asserted claim invalid.<sup>2</sup> For the reasons that follow, ADI’s motion is denied.

<sup>2</sup> Knowles dismissed claims 2, 5, 6, and 19 of the '049 patent from its infringement suit. (Dkt. 175.) ADI withdrew the portion of its motion seeking invalidity of claims 2, 5, 6, and 19 of the '049 patent. (*Id.*) Claim 1 is the only remaining claim the validity of which is in dispute for purposes of this motion.

## LEGAL STANDARD

Summary judgment obviates the need for a trial where there is no genuine issue as to any material fact and the moving party is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(a). To determine whether any genuine fact exists, the court must pierce the pleadings and assess the proof as presented in depositions, answers to interrogatories, admissions, and affidavits that are part of the record. Fed. R. Civ. P. 56(c) & advisory committee notes (1963 amend.) While the court must construe all facts in a light most favorable to the non-moving party and draw all reasonable inferences in that party's favor, *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255, 106 S. Ct. 2505, 91 L. Ed. 2d 202 (1986), where a claim or defense is factually unsupported, it should be disposed of on summary judgment. *Celotex Corp. v. Catrett*, 477 U.S. 317, 323–24, 106 S. Ct. 2548, 91 L. Ed. 2d 265 (1986). Patents are presumed to be valid and the party seeking summary judgment of invalidity “must submit such clear and convincing evidence of facts underlying invalidity that no reasonable jury could find otherwise.” *TriMed, Inc. v. Stryker Corp.*, 608 F.3d 1333, 1340 (Fed. Cir. 2010) (internal quotation marks omitted). “While prior consideration of a reference during prosecution may carry some weight, the burden to prove invalidity does not change; at all times, it remains a showing ‘by clear and convincing evidence.’” *OSRAM Sylvania, Inc. v. Am. Induction Techs., Inc.*, 701 F.3d 698, 705 (Fed. Cir. 2012) (quoting *Microsoft Corp. v. i4i Ltd. P’ship*, - - - U.S. - - -, 131 S. Ct. 2238, 2242, 180 L. Ed. 2d 131 (2011)).

## BACKGROUND<sup>3</sup>

### I. Technology at Issue

The '049 patent, titled “Silicon Condenser Microphone and Manufacturing Method,” claims a silicon condenser microphone package and a method for manufacturing microphone packages. The packaging provides protection for microelectromechanical system (MEMS) microphones by encapsulating the device. MEMS microphones represent the latest state of the art and were an improvement over earlier large and expensive microphones. (Bottoms Decl. ¶¶ 17–18.) The advanced MEMS microphones are included in products such as hearing aids, cell phones, computers, cameras, automobiles, and other consumer and industrial applications. (Bottoms Decl. ¶ 18.)

The internal structure of MEMS microphones are sensitive to external stresses. (Egolf Decl. ¶ 24.) The MEMS microphone silicon diaphragm is one one-hundredth the thickness of a piece of paper and is also glass-like, brittle, and subject to rupture. (*Id.* ¶ 38.) External stresses resulting from shock, vibration, or bending of the product, or other phenomena such as the product being assembled, dropped, or even carried while jogging could damage the microphone. (*Id.* ¶ 24.) External stresses can also rupture the glass-like, brittle diaphragm of the MEMS microphone and adversely affect the sound performance of the microphone. (*Id.* ¶ 25.)

The packaging of the MEMS microphone has to provide protection from external mechanical stresses in addition to protecting the device from dust, light, and electromagnetic interference. (Egolf Decl. ¶ 24; Bottoms Decl. ¶ 19.) The geometric properties of the package

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<sup>3</sup> The facts in the background section are taken from the parties' Local Rule 56.1 statement of facts and the expert declarations and are construed in the light most favorable to Knowles.

also must be maintained. (Egolf Decl. ¶ 26.) For example, altering the size or shape of the small volumes on the front and back cavities of the microphone and the clearance between the diaphragm and back plate can disable the microphone. (*Id.*) Vibration of the microphone package can also produce high levels of background noise making speech communication difficult or impossible. (*Id.*) The packaging for these microphones are expensive and typically account for 50 percent to 90 percent of the cost. (Bottom Decl. ¶ 19.)

The '049 patent's disclosed method for manufacturing a silicon condenser microphone allows for mass production. (Bottoms Decl. ¶ 21.) This disclosed method reduces both the cost for the package and assembly. (*Id.*) The '049 patent also features a package that is able to withstand significant heat while also providing shielding against light, physical damage, and electromagnetic interference. (*Id.* ¶ 22) In addition, the '049 patent discloses a smaller package, which allows greater size flexibility when placing the package in products. (*Id.*) The components can be mounted in the package at high volume with a low cost while using the existing infrastructure. (*Id.*)

## **II. History of the Proceedings**

In November 2009, Knowles filed suit against ADI asserting infringement of United States Patents Nos. 6,781,231 ("the '231 patent") and 7,242,089 ("the '089 patent") in the United States District Court for the Northern District of Illinois (case number 09 C 6238). In December 2009, Knowles requested that the United States International Trade Commission ("ITC") initiate a patent infringement investigation against ADI with regard to the '231 and '089 patents. The ITC began its investigation against ADI as Inv. No. 337-TA-695 ("the 695 Proceedings"). On November 22, 2010, the administrative law judge in the 695 Proceedings found that Halteren

anticipated the '231 patent but did not anticipate the '089 patent.<sup>4</sup> On September 27, 2011, Knowles voluntarily dismissed case number 09 C 6239 and filed the present suit against ADI alleging infringement of the '049 patent.<sup>5</sup>

The '049 patent issued on September 13, 2011 and stems from application Number 09/886,854 (“the '854 application”) filed on June 21, 2001. The '089 patent also originated from the '854 application. During the prosecution of the '049 patent, the PTO examiner considered Halteren and allowed the asserted claim of the '049 patent. The '049 patent and the '231 patent come from different patent families. The '049 patent is, however, subject to a terminal disclaimer based on the '231 patent (*i.e.*, the term of the '049 patent will expire at the same time as the '231 patent).

### **III. Independent Claim 1 of the '049 Patent**

Claim 1 (upon which all of the other claims are dependent) details,

A silicon condenser microphone package comprising:

a package housing formed by connecting a multi-layer substrate comprising at least one layer of conductive material and at least one layer of non-conductive material, to a cover comprising at least one layer of conductive material;

a cavity formed within the interior of the package housing;

an acoustic port formed within the package housing; and

a silicon condenser microphone die disposed within the cavity in communication with the acoustic port;

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<sup>4</sup> A reexamination proceeding regarding the validity of the '231 and '089 patents is pending before the United States Patent and Trademark Office.

<sup>5</sup> Knowles also alleged that ADI infringed United States Patent No. 7,537,964 (“the '964 patent”). Knowles later dismissed its infringement allegations regarding the '964 patent. (Dkt. 163.)

where the at least one layer of conductive material in the substrate is electronically connected to the at least one layer of conductive material in the cover to form a shield to protect the silicon condenser microphone die against electromagnetic interference.

(’049 Patent, 12:15–31.) The parties dispute whether Halteren anticipates claim 1 of the ’049 patent by disclosing the following terms construed by the court: (1) package, (2) housing, and (3) shield to protect the silicon condenser microphone die against electromagnetic interference. The court’s claim

construction defined the term “package” as

a single, self-contained unit which fully encloses a device, and which provides: (1) protection for the device from the external environment, (2) an electrical connection between the device and the package, and (3) an electrical connection between the package and another circuit outside of the package.

(Dkt. 118.) The court defined “housing” as “a protective enclosure.” (*Id.*) The court further defined the term “a shield to protect the silicon condenser microphone die against electromagnetic interference” as

a layer of conductive material that blocks (from the silicon condenser microphone die) the effects of an electric field, while allowing free passage to magnetic fields as a ‘Faraday cage’ would do.

(*Id.*)

#### **IV. The Halteren Patent**

The Halteren patent issued on December 4, 2001. Halteren’s abstract discloses “a flexible substrate transducer assembly [that] integrates a transducer or transducer system with built-in signal processing capability, and a flexible substrate.” Halteren discloses a microphone housing comprised of a flexible substrate attached to a lid that encapsulates a transducer. (Egolf ¶ 27.) Halteren emphasizes that its substrate must be flexible. (Bottoms ¶ 30.) Halteren’s substrate is comprised of several layers, one of which included Kapton. Kapton is the brand for name for a polyimide film

that can be used as a flexible circuit board. (Egolf ¶ 29.) Kapton is often used in products where space is at a premium and the circuit boards must be flexible enough to be bent and twisted to fit into small spaces or products in which parts of the circuit board need to be flexible. (*Id.* ¶¶ 30–31.) Kapton is hygroscopic and can change shape as a result of the absorption of water molecules in liquid or vapor form. (*Id.* ¶ 32.) Because of its hygroscopic nature, Kapton was known to be less stable than FR-4, which was another material commonly used to form substrates. (*Id.* ¶ 32.) A substrate made of FR-4 would be approximately 10-25 times stiffer than a substrate made of Kapton. (*Id.* ¶ 33.) The '049 patent's microphone package is primarily made of FR-4. ('049 patent, 3:24–25.)

## ANALYSIS

### I. Applicability of the 695 Proceedings

ADI relies on the testimony of Knowles' expert during the 695 Proceedings to demonstrate that Halteren anticipated claim 1 of the '049 patent. At the ITC hearing, ADI contends that Knowles' expert admitted that Halteren anticipated the '231 patent, and because the '049 patent and the '231 patent are patentably indistinct from each other, this testimony is convincing if not binding on this court. Knowles argues that relying on its expert's testimony during the 695 Proceedings is improper because ITC decisions on patent validity do not have preclusive effect in federal courts and those proceedings dealt with another patent (the '231 patent).

The parties initially dispute the preclusive effect of ITC rulings. “In 1974, Congress passed the Trade Reform Act of 1974, amending the Tariff Act of 1930, to allow respondents in ITC proceedings to plead, and the ITC to consider, all legal and equitable defenses, including

patent invalidity and unenforceability.” *Texas Instruments Inc. v. Cypress Semiconductor Corp.*, 90 F.3d 1558, 1568 (Fed. Cir. 1996). The ITC has the authority to investigate unfair trade practices, and specifically with regard to patents it can investigate,

(B) [t]he importation into the United States, the sale for importation, or the sale within the United States after importation by the owner, importer, or consignee, of articles that –

(i) infringe a valid and enforceable United States patent . . .; or

(ii) are made, produced, processed, or mined under, or by means of, a process covered by the claims of a valid and enforceable United States patent.

19 U.S.C. § 1337(a)(1)(B). Congress cautioned, however, against giving preclusive effect to ITC decisions regarding patent validity:

[I]n patent-based cases, the Commission considers, for its own purposes under section 337, the status of imports with respect to the claims of U.S. patents. The Commission’s findings neither purport to be, nor can they be, regarded as binding interpretations of the U.S. patent laws in particular factual contexts. Therefore, it seems clear that any disposition of a Commission action by a Federal Court should not have res judicata or collateral estoppel effect in cases before such courts.

*Texas Instruments*, 90 F.3d at 1568 (quoting S. Rep. No. 1298, 93d Cong., 2d Sess. 196 (1974), *reprinted in* 1974 U.S.C.C.A.N. 7186, 7329)). The Federal Circuit has construed this legislative history to mean that “Congress did not intend decisions of the ITC on patent issues to have preclusive effect.” *Id.*; *accord Bio-Tech. Gen. Corp. v. Genentech, Inc.*, 80 F.3d 1553, 1564 (Fed. Cir. 1996) (“[W]e hold that the ITC’s prior decision cannot have claim preclusive effect in the district court.”).

While decisions from the ITC are not binding, a district court can still “attribute whatever persuasive value to the prior ITC decision that it considers justified.” *Texas Instruments*, 90 F.3d at 1569. Here, the 695 Proceedings did not concern the patent presently at issue, rather they



dealt with the prior-issued '231 patent. The '231 patent and the '049 patent are not the same. *See, e.g., Kearns v. Gen. Motors Corp.*, 94 F.3d 1553, 1557 (Fed. Cir. 1996) (“[E]ach patent by law, covers [an] independent and distinct invention.”).

Still, ADI argues that the similarity between the '049 patent and the '231 patent make the ITC proceedings relevant. ADI notes that the PTO concluded that the '049 patent was “patentably indistinct” from the '231 patent and that it was subject to a terminal disclaimer<sup>6</sup> based on the life of the '231 patent. Knowles contends, however, that the filing of a terminal disclaimer simply obviates a double patenting issue. “A rejection for obvious-type double patenting means that the claims of a later filed patent application are deemed obvious from the claims of an earlier patent.” *Quad Env. Tech. Corp. v. Union Sanitary Dist.*, 946 F.2d 870, 873 (Fed. Cir. 1991).<sup>7</sup> “In legal principle, the filing of a terminal disclaimer simply serves the statutory function of removing the rejection of double patenting, and raises neither presumption nor estoppel on the merits of the rejection.” *Id.* at 874. Filing a terminal disclaimer is not an admission that the later-issued patent is invalid in light of the earlier patent. *See Motionless Keyboard Co. v. Microsoft Corp.*, 486 F.3d 1376, 1385 (Fed. Cir. 2007). The PTO’s direction to file a terminal disclaimer limiting the scope of the '049 patent’s protection to that of the '231 patent thus does not give rise to preclusive effect. The proper consideration here is what

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<sup>6</sup> When filing a terminal disclaimer, the patent holder disclaims the “portion of the second patent which would extend beyond the expiration of the first” and in doing so, “the patentee gives up any extension of patent protection that might have resulted.” *Ortho Pharm. Corp. v. Smith*, 959 F.2d 936, 940 (Fed. Cir. 1992).

<sup>7</sup> These situations arise where an inventor continues work and seeks additional patent protection based on developments and improvements in the field of an already existing invention. *Quad. Env.*, 946 F.2d at 873. To remedy the problem of a double-patenting rejection, the inventor can file a terminal disclaimer, which in effect limits the term of the subsequent patent to that of the prior-issued patent. *Id.*

Halteren discloses relative to the '049 patent, not what the ITC concluded Halteren disclosed in comparison to the '231 patent. As such, the court declines to consider testimony from the 695 Proceedings with respect to the '231 patent for purposes of determining the validity of the '049 patent.

## **II. Whether Halteren Anticipates Claim 1 of the '049 Patent**

To anticipate a claim under 35 U.S.C. § 102, the prior art reference must expressly or inherently disclose each claim limitation as determined by one of ordinary skill in the art.<sup>8</sup> *ClearValue, Inc. v. Pearl River Polymers, Inc.*, 668 F.3d 1340, 1344 (Fed. Cir. 2012); *Retractable Tech., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1309 (Fed. Cir. 2011) (en banc). “Although § 102 refers to the invention generally, the anticipation inquiry proceeds on a claim-by-claim basis.” *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1334 (Fed. Cir. 2008) (internal quotation marks omitted). The prior art reference must describe the “claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it.” *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990). Although anticipation is normally a question of fact, *Finisar*, 523 F.3d at 1334, it “may be resolved on summary judgment if no genuine issue of material fact exists.” *OSRAM Sylvania*, 701 F.3d at 704.

Knowles argues that Halteren does not anticipate claim 1 of the '049 patent because it did not

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<sup>8</sup> The parties' experts disagree over the definition of person of ordinary skill in the art. ADI's expert, Dr. Pecht, opined that a person of ordinary skill in the art “is a person with (1) a degree in engineering or one of the physical sciences; (2) a minimum of one or two years of full-time experience in device packaging; and (3) general knowledge of electronics packaging that would include some understanding of package designs, constructions, functions, attributes, and processes used to produce packages as well as to incorporate the devices into the package.” (Pecht Decl. ¶ 8.) Knowles' experts, Doctors Bottoms and Egolf, opined that a person of ordinary skill in the art would additionally “have general knowledge of MEMS microphone packaging requirements.” (Bottoms Decl. ¶ 13; Egolf Decl. ¶ 13.) Doctors Bottoms and Egolf further provide that their opinions would not change if Dr. Pecht's definition of person of ordinary skill in the art were used. (Bottoms Decl. ¶ 15; Egolf Decl. ¶ 14.)

disclose claim 1's limitations regarding a (1) package, (2) housing, and (3) shield to protect the silicon condenser microphone die against electromagnetic interference. According to Knowles, Halteren's flexible substrate is a fundamental design flaw that would not protect a sensitive MEMS microphone from external stresses because it would bend and change shapes.

#### **A. Package**

The parties dispute whether Halteren disclosed element (1) in this court's construction of the term "package," which the court defined in part as providing "protection for the device from the external environment." (Dkt. 118.) ADI contends that Halteren sufficiently provided protection from the external environment by claiming a lid that protects the silicon microphone from the external environment. Specifically, Halteren places a silicon microphone in a housing. (Halteren 7:53). Halteren identifies a lid to be placed over the microphone, which is "capable of providing the shielding from the external environment." (*Id.* 2:57–60). Halteren additionally discloses securing the lid to a multi-layer substrate using adhesive. (Pecht ¶¶ 17, 29.) The multi-layer substrate is comprised of a Kapton layer,<sup>9</sup> a glue layer, a copper layer, another glue layer, and another Kapton layer. (*Id.* ¶ 17.) Halteren describes this multi-layer substrate as

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<sup>9</sup> Specifically, Halteren provided that,

The flexible circuit strip may comprise a 40–100 µm thick upper kapton® layer, a glue layer of about 25 µm thickness, a copper layer of about 10–20 µm thickness that holds three conductors, another glue layer of about 12 µm thickness and finally a 10–20 µm thick lower kapton® layer.

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The flexible member 40 comprises an upper kapton® layer, a glue layer, a (conductive) copper layer, another glue layer and finally a lower kapton® layer of reduced thickness compared to the upper kapton® layer.

(Halteren, 4:66–5:3, 8:34–37; Pecht, ¶ 17.)

being flexible. (*Id.*)

Knowles contends that Halteren does not protect the microphone from the external environment because the defining feature of Halteren, the flexible substrate, presents a fundamental design flaw. (Egolf ¶¶ 35–36.) Knowles argues that the flexible substrate allows for the transmission of vibrations and mechanical stresses directly into the microphone package, which could render the microphone inoperable. (*Id.* ¶ 40.)<sup>10</sup> Halteren’s flexible substrate could change shape or transmit external mechanical stresses directly into the microphone package. (*Id.* ¶ 22.) In addition, because the flexible substrate was constructed using Kapton, a hygroscopic material, the substrate was less stable and could change shape as a result of the absorption of water molecules.

In short, the issue is whether the flexible substrate disclosed in Halteren precludes a finding that Halteren anticipates the package disclosed in claim 1 of the ’049 patent. Halteren and the ’049 patent provide for encapsulation of the microphone device. Indeed, assembly of the product disclosed in Halteren encloses<sup>11</sup> the microphone from the external environment,

The supporting area of the flexible elongate member is bounded by the lid attached to the member’s upper surface. The lid is preferably a closed lid without openings to the external environment so that when the lid is mounted over the transducer system and attached to the upper surface of the flexible member, the supporting area and the transducer system are shielded by the combined arrangement of the lid and the flexible member. Consequently, the flexible member forms part of an

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<sup>10</sup> The heavier end of Halteren’s transducer assembly would need to be secured to minimize the effect of the relative motion of the unsecured flexible substrate, which would be subject to mechanical shock and vibration. (Bottoms ¶ 30.)

<sup>11</sup> ADI additionally argues that placing Halteren’s enclosure in a device, such as a hearing aid or cellular phone, would provide an additional layer of protection. Knowles, however, contends that the installation of Halteren’s disclosure in another device could damage the microphone because of its susceptibility to shocks, vibrations, and other types of similar phenomena. (Egolf ¶ 39.) In addition, Knowles argues that Halteren does not disclose this added layer of protection.

encapsulation of the transducer system.

(Halteren 3:18–30, Pecht Decl. ¶ 12.)

Halteren uses a flexible substrate to assemble the microphone enclosure. Indeed, Halteren recites that the flexible substrate forms part of the encapsulation. (Pecht Decl. ¶ 12.) The '049 patent, by contrast, incorporates FR-4, a rigid material, as part of its package structure. Knowles contends that Halteren's flexible substrate is a design difference and flaw.<sup>12</sup> While Halteren encloses the microphone from outside phenomena, using a flexible material like Kapton in the substrate makes the device more vulnerable to external sensations such as shocks and vibrations. This external stimuli could damage the delicate silicon MEMS microphone inside the encapsulated device. Protection from the external environment is a critical component of the '049 patent because MEMS microphones are extremely fragile. Although ADI contends that Halteren provided some protection from the environment, a factual question remains about whether Halteren's design was incapable of protecting the microphone because of its flexible substrate. Whether a person of ordinary skill in the art would determine that Halteren discloses the '049 patent's package despite this structural difference is not a question that can be decided by summary judgment.

## **B. Housing**

The parties also dispute whether Halteren discloses claim 1's limitation of a housing. This court construed the term "housing" as a "protective enclosure." Halteren specifically discloses "a lid attached to the upper surface of the flexible elongate member and covering and

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<sup>12</sup> Knowles also presented expert declarations showing that a microphone package using Halteren's design would not work to the same extent as the invention claimed in the '049 patent.

shielding the transducer system[.]” (Halteren 2:47–50.) ADI contends that Halteren discloses a lid that covers and shields the transducer system, which provides an adequate protective enclosure. Knowles argues that Halteren’s flexible substrate does not protect the enclosed device and thus it does not disclose a protective enclosure. Whether Halteren discloses a housing centers on whether Halteren’s flexible substrate could protect the microphone device from external stimuli. For the reasons noted above in section A, this is a question of fact.

**C. Shield to protect the silicon condenser microphone die against electromagnetic interference**

The parties also dispute whether Halteren discloses a shield that protects against electromagnetic interference (“EMI”). The court has construed this phrase to be “a layer of conductive material that blocks (from the silicon condenser microphone die) the effects of an electric field, while allowing the free passage to magnetic fields as a ‘Faraday cage’ would do.” (Dkt. 118.)<sup>13</sup> ADI contends that Halteren’s lid acts as an EMI shield. Halteren provides in part that,

when the lid is mounted over the transducer system and attached to the upper surface of the flexible member, the supporting area and the transducer system are shielded by the combined arrangement of the lid and the flexible member.

[t]he lid preferably comprises, or is fully fabricated in, an electrically and/or magnetically conductive material. This will make the lid function as an EMI shield that effectively shields the transducer system and the generated transducer from interfering electromagnetic signals of the external environment.

the lid is electronically conductive and connected to at least two conductors of the flexible elongate member. The lid may accordingly be electrically connected to a ground conductor, and the exposed part of this ground conductor is preferably

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<sup>13</sup> Knowles argues that ADI fails to address how Halteren discloses this court’s definition of shield, namely by “allowing for free passage to magnetic fields as a ‘Faraday cage’ would do.” (Dkt. 118.) ADI, however, cited to Knowles’ expert who testified at his deposition that Halteren’s lid could be used as a shield that would act like a Faraday cage.

electrically connected to a ground terminal of the electronic equipment housing the flexible substrate transducer assembly. Consequently, the interfering electromagnetic signals are at least partly absorbed by the lid and shorted to ground, thereby minimising the coupling of noise-inducing interfering signals to the output signals of the transducer system. . . . Even better EMI shielding may be obtained by providing the upper and/or lower surface of the flexible member as ground planes, and arrange the transducer signal(s) and the power supply on respective conductors that are placed in the intermediate layer.

(Halteren 3:20–25; 3:48–53; 4:15–49; Pecht ¶ 25.)

Knowles acknowledges that Halteren’s lid could protect against impinging EMI.

Knowles notes, however, that Halteren’s multi-layer flexible substrate contains unshielded wiring that would conduct EMI interference directly into the substrate housing the microphone like an antenna.<sup>14</sup> According to Knowles, the unshielded wiring could transmit EMI directly into the transducer housing the microphone. (Bottoms ¶¶ 31–32.) In other words, the unshielded wiring could transmit EMI into the structure that it was designed to protect. Halteren’s shielding may protect against EMI impinging on the cover of the lid containing the microphone but would not protect against EMI conducted into the enclosure. (*Id.* ¶ 32.) Thus, as a result of the unshielded wiring in Halteren’s flexible substrate, Knowles has raised a question of fact regarding whether Halteren discloses a shield protecting the enclosed microphone from EMI.

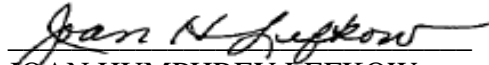
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<sup>14</sup> Knowles points to the fact that Halteren would transmit EMI into the transducer as another way by which it failed to disclose the package in claim 1. The unshielded wiring in the flexible substrate that conducted EMI into the transducer disclosed in Halteren, argues Knowles, would not provide protection from the external environment.

## CONCLUSION AND ORDER

ADI's motion for partial summary judgment seeking invalidity of claim 1 of the '049 patent based on anticipation is denied.

Dated: March 7, 2012

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JOAN HUMPHREY LEFKOW  
United States District Judge